

Heisei 1-157904 (1989)

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43. Patent Laid-open

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| 54. Name of Invention: | Method for Preventing Lawn Diseases | | |
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| 72. Inventor | Masamichi Okuzumi 1043-23 Shimotomi, Tokorozawa-shi, Saitama | | |
| 72. Inventor | Shunnosuke Watanabe 2-13-2 Saiwai-chô, Higashikurume-shi, Tokyo | | |
| 71. Applicant | Agro Kanesho 2-4-1 Marunouchi, Chiyoda-ku, Tokyo | | |
| 74. Agent | Minoru Nakamura, Patent Attorney, and 5 others | | |

Description

1. Title of Invention:
Method for Preventing Lawn Diseases

2. Scope of Patent Claim:
The method for controlling lawn diseases which is characterized by treating lawns with a high concentration of germicide containing cupric 8-oxyquinoline and blue color pigment.

3. Detailed Explanation of the Invention:
Areas of Application in Industry:

This invention relates to the method for controlling various diseases that inhibit the growth of lawns whereby such diseases are cured through the application of germicides for agriculture and gardening use to the lawn before or at the initial stage of such soil-originated diseases.

Existing Technology:

Large patches, brown patches, spring balding/thinning disease, etc. occur on the lawns of golf courses, green tracts of land, etc. and is one of the major causes that lead lawns to wither thereby damaging their appearance. It is known that such diseases are likely to generate underground within the soil of lawn roots once it brakes out and they are extremely difficult to eliminate.

One of the currently known methods for controlling such soil-originated disease which is widely used is the spraying of germicides such as chlorotalonyl, tyurum, captan, and benomil agents.

Helsel 1-157904 (1989)

Table 1

| | Concentration (Component ppm) | Percentage of Diseased Spot Area (%) | Chemical Hazard | Contamination |
|--|----------------------------------|---|-------------------------|---------------|
| Water-dispersible agent containing 80% of cupric 8-oxyquinoline and 2% of ultramarine blue | 3,200 1,600 | 0 2.4 | None None | None None |
| Flowable agent containing 36% of cupric 8-oxyquinoline and 1.5% of ultramarine blue | 3,200 1,600 | 0 2.8 | None None | None None |
| Water-dispersible agent containing 75% of chlorotalonyl | 1,500 | 12.1 | Yellow discoloration | None |
| Untreated | - | 97.7 | - | - |

Experiment 2. Curing Effect When Applied to Brown Patches on the Lawn:

On a site of lawn (species: Pentalos Pentgrass) which was severely damaged from brown patches, the agent formulation diluted at a specified concentration was sprayed one liter per every square meter. Spraying was carried out once. Each zone was measured at 2 square meters and tested in doublet.

Immediately before the spraying and also five days later, the results shown in Table 2 were obtained in the same manner as mentioned in Experiment 1.

Table 2

| | Concentration (Component ppm) | Percentage of Diseased Spot Area (%) | | Contamination |
|--|----------------------------------|--------------------------------------|--------------------------|---------------|
| | | Before Spraying | 5 Days after Spraying | |
| Water-dispersible agent containing 35% of cupric 8-oxyquinoline and 2% of ultramarine blue | 3,200 | 42.5 | 3.2 | None |
| Water-dispersible agent containing 75% of chlorotalonyl | 1,500 | 38.3 | 35.1 | None |
| Untreated | - | 41.2 | 46.7 | - |

Experiment 3. Curing Effect When Applied to Large Patches on the Lawn:

Diseased spots (approximately 3 cm in diameter) with large patches on the lawn (species: Korean lawn) were divided into three equal portions, and the formulation of a specified concentration was sprayed once at one liter per every square meter. This was done in triplet.

The rate of recovery for the diseased spots was examined one week after spraying and the results shown in Table 3 were obtained.

In addition, the rate of recovery for the diseased spots was calculated using the formula below.

$$\text{The rate of recovery (\%)} = \frac{\text{Regenerated Area}}{\text{Area of Test Zone}} \times 100$$

Heisei 1-157904 (1989)

Table 3

| | Concentration (Component ppm) | Recovery Rate of Diseased Spots (%) | Chemical Hazard | Contamination |
|--|----------------------------------|--|--------------------|---------------|
| Water-dispersible agent containing 80% of cupric 8-oxyquinoline and 2% of ultramarine blue | 3,200 | 89.8 | None | None |
| Water-dispersible agent containing 75% of chlorotalonyl | 1,500 | 32.1 | None | None |
| Untreated | - | 0 | - | - |

Effects of the Invention:

Using the control methods proposed by this invention, it is possible to prevent lawn diseases originated from soil such as brown patches, large patches, spring balding disease, etc. in a most economical and safe way requiring minimal labor. Moreover, it was found that the curing effect and the enhancement of new leaf regeneration by cupric 8-oxyquinoline, as well as the maintenance of the appearance of the lawn by blue pigment, facilitate the recovery of existing diseased spots on the lawn at a very early stage. Therefore, the method proposed by this invention offers an extremely effective means of maintaining the greenness of the lawn, as well as the prevention of lawn diseases, which exist on golf courses and environmentally protected green land.